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ABSTRACT

In the past, organizations have had problems during the implementation phase of Program Planning Budgeting Systems (PPBS). Under the approach developed by the Educational Management Development Center (EMDEC), several school systems develop similar PPB systems, with EMDEC as the coordinating hub. District personnel are first familiarized with the program concept through the development of the program budget. Only after a year of budget work are personnel asked to develop goals, objectives, and targets. Cooperation by several districts permits the distribution of costs across the districts and encourages an exchange of information. The EMDEC approach is presently being tested with three school districts in Allegheny County, Pennsylvania. The three districts have had good success with the development of the program budget; the most difficult problem during the initial months was a lack of detailed information. To introduce program analysis and evaluation, the EMDEC approach uses two pilot programs for each district, so the implementation process can be easily modified for maximum effectiveness. The subsequent development of goals and objectives for the entire district simply involves the full application of guidelines designed during the pilot phase. (Author/JG)

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PPBS - A NEW APPROACH

Educational Management Development
Center

Carnegie-Mellon University
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EMDEC - An Introduction

The Educational Management Development Center (EMDEC) is a non-profit organization designed to aid school districts in developing innovative management techniques. EMDEC promotes better management in cooperative ventures with school districts. The Center utilizes the resources available at Carnegie-Mellon University and the Allegheny Intermediate Unit to interact with school district personnel on management projects. At present, EMDEC and the districts are engaged in seven projects:

1) developing a classification of over 70 measures of affective development;

2) constructing a Community Feedback System through survey design, administration, and analysis;

3) devising a Personnel Data System for storing, retrieving, and using information about school system staff;

4) conducting an Energy Efficiency Study of school buildings;

5) setting up a Management by Objectives system for improved evaluation and compensation of school personnel;

6) promoting better communications between school employees and the community through a Communications Workshop; and

7) developing a Program Planning Budgeting System (PPBS) to achieve improved planning, control of expenditures, and relate costs to educational outputs.

Each district selects the projects it wishes to participate in based upon its needs and interests. This paper is concerned with one of these projects - the development of a PPB System with three districts.

PPBS - An Overview

A PPB System is designed to provide administrators with better control over the operation of their districts. It can help to maximize the benefits of education through an optimum allocation of school district resources. However, the benefits that can accrue to a school district from a PPB System have been

enumerated many times in the past (for examples see Educational Resources Management System by Dr. William Curtis). Therefore, this paper will accept these "potential" benefits and concentrate on an implementation scheme which will aid in the realization of these benefits. Before embarking on this endeavor, it is essential that the components of PPBS be described and the "jargon" which inevitably creeps into any discussion of PPB Systems be defined.

The basic framework of PPBS is the "program structure", which is a hierarchial arrangement of all programs that exist in a district. This arrangement is typically depicted in a diagram similar to Figure I. Each section of the diagram is associated with a level in the hierarchy. Thus, the district at the top of the program structure is on level I and includes all the programs on the lower levels. Instruction, on level II, includes the programs on level III which are connected to it, and in turn is a part of the district identified on level I.

The structure defines the programs maintained in the school system; the program budget assigns costs to these programs. The main tool for determining the expense associated with each program is a "crosswalk" matrix. This matrix is simply a table that matches the standard or line item budget categories and expenditures to the program areas. Figure II illustrates the line-item budget, read across the rows, and the new program expenditures, read down the columns. From these "crosswalk" matrices, tables can be devised summarizing the expenses at each level of the program structure.

The program format can also be used to plan future costs for the school system

FIGURE I

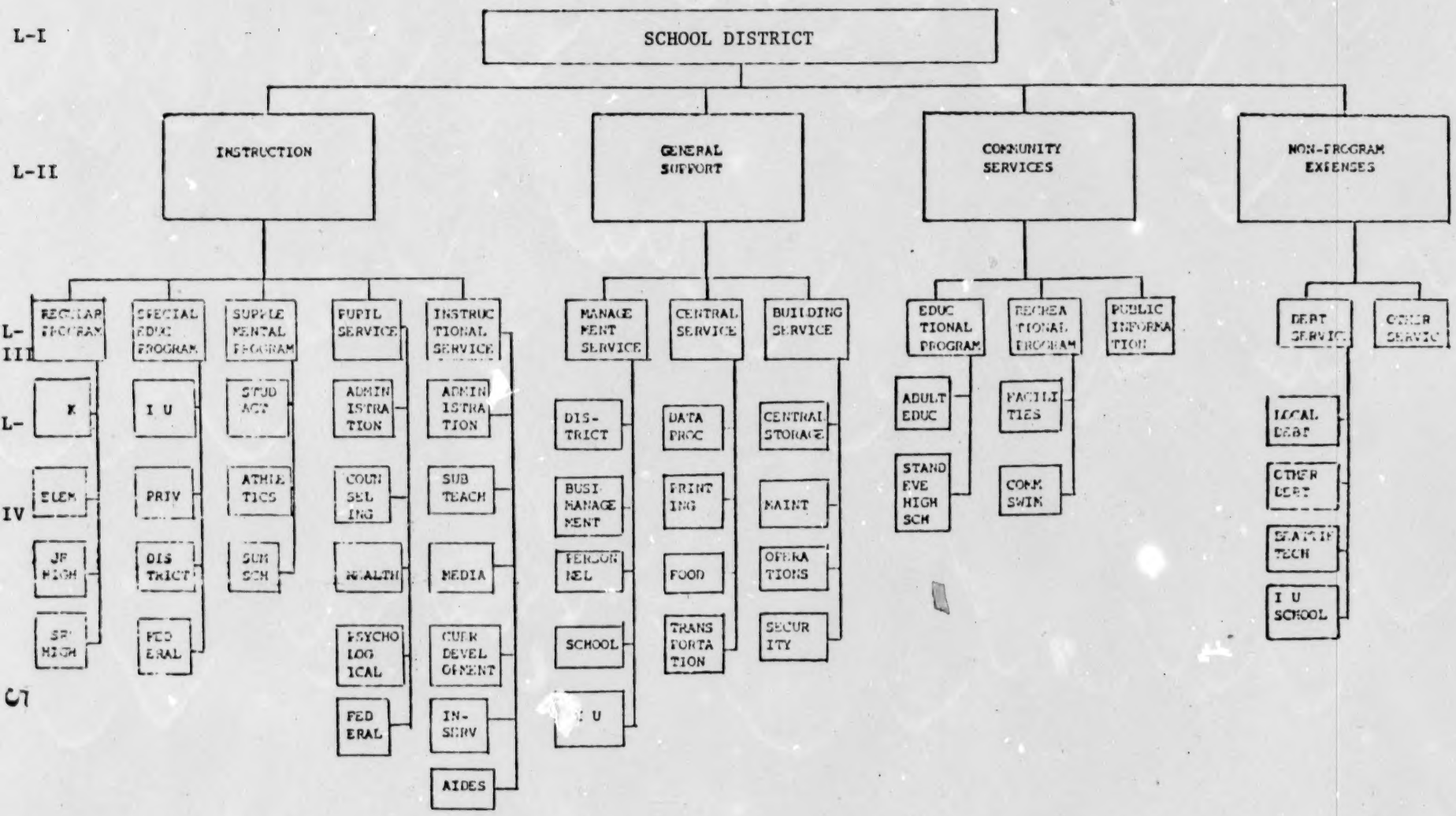
L-I
SCHOOL DISTRICT
L-II
INSTRUCTION
GENERAL SUPPORT
COMMUNITY SERVICES
NON-PROGRAM EXPENSES
L-III
RECREATIONAL PROGRAM
SPECIAL EDUC PROGRAM
SUPPLEMENTAL PROGRAM
PUPIL SERVICE
INSTRUCTIONAL SERVICE
MANAGEMENT SERVICE
CENTRAL SERVICE
BUILDING SERVICE
EDUCATIONAL PROGRAM
RECREATIONAL PROGRAM
PUBLIC INFORMATION
DEBT SERVIC
OTHER SERVIC
L-IV
K
ELEM
JR HIGH
SR HIGH
I U
PRIV
DISTRICT
FEDERAL
STUD ACT
ATHLETICS
SUM SCH
ADMINISTRATION
COUNSELING
HEALTH
PSYCHOLOGICAL
FEDERAL
ADMINISTRATION
SUB TEACH
MEDIA
CURR DEVELOPMENT
IN-SERV
AIDES
DISTRICT
BUSI MANAGEMENT
PERSONNEL
SCHOOL
I U
DATA PROC
PRINTING
FOOD
TRANSPORTATION
CENTRAL STORAGE
MAINT
OPERATIONS
SECURITY
ADULT EDUC
STAND EVE HIGH SCH
FACILITIES
COMM SWIM
LOCAL DEBT
OTHER DEBT
STATE TECH
I U SCHOOL

FIGURE II

		INSTRUCTION					GENERAL SUPPORT			COMMUNITY SERVICE			NON-PROGRAM EXPENSE		
	FOX CHAPEL	Regular Programs	Sp. Ed. Programs	Supplement Programs	Pupil Services	Instruct. Services	Management Services	Central Services	Building Services	Public Services	Education Programs	Recreation	Debt Retirement	Other	TOTAL
0100's	Administration		120				312332	22536		16184					351172
1000's	Instruction	4087192	276041	186056	5950	633644	170033	5785		5330					5370032
2100's	Pupil Personnel Services				229898										229898
2400's	Health Services			5500	96195										101695
2700's	Pupil Transportation							532924							532924
2600's	Operation & Maintenance		357			34140			958085						992582
2800's	Fixed Charges							34000	34300					709789	778089
3100's	Food Service							20000							20000
3200's	Student Activities			63516											63516
3300's	Community Services									5600	2000	17125			24725
4000's	Capital Outlay		307>			57300			15150						72525
5000's	Debt Service												1082632		1082632
6000's	Outgoing Transfers	123062	194157												317219
7000's	Budgetary Reserve														
	TOTALS	4210254	473750	255072	332043	725084	482415	615246	1007535	30114	2000	17125	1082632	908789	10144259
	NORTH ALLEGHENY														
0100	Administration						257626	36400		14848					308874
1000	Instruction	4610360	40855	139870	14865	755831	181234	9425		23032					5775472
2100	Pupil Personnel Services				202872										202872
2400	Health Services				101710										101710
2700	Pupil Transportation Services							501992							501992
2600	Operation & Maintenance					33528	4151		973276						1010955
2800	Fixed Charges	2840						10320	42475					776482	832097
3200	Student Activities			132450											132450
3300	Community Services									12000		6500			18500
4000	Capital Outlay				500	42824			23295						66619
5000	Debt Service												2021519		2021519
1400	Intergovtn Payments	102393	134367				27000				3000				266760
	TOTALS	4715593	175222	272320	319947	832184	470011	558137	1039046	49880	3000	6500	2021519	776482	11239840
	NORTH HILLS														
0100's	Administration			2500			342475	42152		6000					393127
1000's	Instruction	4839647		30721	11900	816814	221281	22400							5942763
2100's	Pupil Personnel Services				229260	150									229410
2400's	Health Services				143100										143100
2700's	Pupil Transportation Services							523098							523098
2600's	Operation & Maintenance					23298	42545		2324880						2390723
2800's	Fixed Charges	600							59233					863193	923026
3100's	Food Services							30718							30718
3200's	Student Activities	3300		194352											197652
3300's	Community Services											22000			22000
4000's	Capital Outlay					37104	5650	8000	138582						189336
5000's	Debt Service												1267031		1267031
1400's	Intergovtn Payments		362940												362940
7000's	Budgetary Reserve													2e3842	3e3842
	TOTALS	4843547	362940	227573	384260	877366	611951			6000		22000			

through a "multi-year zero based" budget. Planning is facilitated by reviewing the trends in costs from one year in the past to three years in the future. The present and future budgets are calculated from scratch by reviewing the full cost of each program. A program must justify all costs, not just additional costs, for each year it is in operation. Hence, the term multi-year zero based budget.

Another element of PPBS is "program evaluation". The basis for evaluation is the definition of goals, objectives, and targets for each program. A "goal" is a broad, general statement of the purpose of a program. It has long range implications for the district. An "objective" is a description of the accomplishments that a program will achieve within the next three years. The objectives should be derived from the program goals. Program "targets" are specific behavioral accomplishments that should be achieved by the end of the school year, indicating successful progress toward the goals and objectives. These targets are typically quantifiable measures. The determination of the achievement of the goals, objectives, and targets constitutes program evaluation.

The essence of PPBS is "program analysis". This is concerned with associating program costs to program evaluation. One of the methods for performing program analysis is the calculation of cost-benefit ratios and comparing them across programs.

Thus, there are five basic elements of PPBS. The program structure provides a framework for the systems analysis. The crosswalk matrix is used to transfer the standard line item budget into the program format. The multi-year zero-based budget is a cost planning tool for the administrator. Program Evaluation is a method for assessing educational achievement. Finally, Program Analysis is the comparison of the benefits of education with the resource utilization rate.

The EMDEC Approach

In the past, organizations have had problems during the implementation phase of PPBS. In fact, there are very few operational systems in which periodic program analysis and evaluation are attempted. The EMDEC approach is designed to overcome those problems and to achieve full development of a PPBS.

The approach is based on a cooperative effort with several school systems. The school districts develop similar PPB Systems with EMDEC serving as the coordinating hub. The initial thrust is the development of the program budget. Only after this portion is nearing completion is program evaluation begun.

The PPB System implementation process follows:

(1) Design a single program structure for the three districts with an accurate description of the expenditures to be associated with each program.

(2) "Crosswalk" or transfer the line item budgets into the program format, and develop a computer coding scheme.

(3) Develop guidelines for multi-year zero based budgeting.

(4) Choose two "pilot" programs and conduct an evaluation and analysis of each.

(5) Implement multi-year budgeting.

(6) Develop goals and objectives for the overall district as well as for all programs.

(7) Devise a system for periodic evaluation of district goals, the program structure, and individual programs.

The entire procedure should take three to five years.

This method is designed to overcome the three major problem areas that have plagued previous schemes.

(1) Costs, both set up and operating, have been high;

(2) Organizational resistance; and

(3) Time frame, certain portions of the system have taken too long to implement and the fully developed system has required too long for its operation cycle to be completed.

First, the cost of implementation and operation are distributed across several districts with the EMDEC approach. Also, instead of each district having its own team of PPB analysts, a team would work at all schools thereby reducing costs. Second, organizational resistance often stems from a poor understanding of the program concept. Previous methods required the design of goals, objectives, and targets before a clear conception of the school district's programs can be developed. The EMDEC approach overcomes this problem by familiarizing individuals with the program concept through the program budget. Only after a year of budget work is the individual asked to develop goals, objectives, and targets. Finally, the "time-frame" problems also stem from the early design of goals, objectives, and targets. This is a time consuming process with only minimal initial returns. The new method of implementation builds the program budget portion of PPBS during the early stages of development because it is quick and easy to set up with fairly high returns. The operational time problems are overcome by the "central" program analysts who work only with PPB Systems.

It is clear from the preceding discussion that the EMDEC approach brings to bear two innovative techniques to PPBS implementation. First, the development of the budgeting portion of PPBS before attempting the difficult task of devising goals, objectives, and targets allows the district personnel to: familiarize itself with the program concept; to utilize a portion of the system during the long process of implementing program evaluation procedures; and to realize the benefits of an operating program budget in a relatively short time. Second, the common PPB System permits the distribution of costs across the districts and encourages ar exchange of information among the districts.

The EMDEC Experience

The EMDEC approach is presently being tested with three school districts in Allegheny County, Pennsylvania. The districts are all in close geographic proximity and maintain a history of cooperation. Each of the school systems had begun work on PPB Systems prior to joining EMDEC. The districts are:

1) Fox Chapel Area School District - Dr. James Burk, Superintendent, Mr. Harry Lodge, Business Manager, and three graduate students from Carnegie-Mellon University had completed a pilot PPBS study which concentrated on program structure and budget;
2) North Allegheny School District - Dr. Carl Newman, Superintendent, Mr. Thomas Hawkins, Director of Personnel and Communications; and Mr. George Varnum, Business Manager had developed a "semi-program" accounting system and a program budget coding scheme; and
3) North Hills School District - Dr. Donald Torreson, Superintendent, Mr. Martin Scholl, Executive Assistant, Mr. Glenn Mamula, Business Manager, and the North Hills communities had designed system-wide goals and objectives, and a program structure.

EMDEC and the three districts have had a great deal of success with the development of the program budget. A common program structure has been designed for the first three levels. The fourth level would have identified several programs that were specific to one of the districts; therefore, no effort was made to reach agreement on a common fourth level. During the building of the structure, major efforts were required to achieve a consensus among the districts. Each superintendent had his own conception of the appropriate model for his district. Therefore, a spirit of compromise and cooperation was promoted by EMDEC. To encourage compromise the participants were encouraged to consider the functions of a program structure. It was determined that the structure was a tool for collecting and grouping data in a systematic

fashion. The highest levels of the structure were merely methods of organizing the basic programs and not crucial to the operation of the system. Also, there was no right and wrong structure; the effectiveness of the tool was determined by how well the districts could work with it. To facilitate comparison of the data, a common conception of and written definitions of the program areas were developed. To build an atmosphere of cooperation, the participants were encouraged to discuss their daily functions and the problems of their districts. This provided them with specific information concerning the operations of all the participating school systems and more importantly opened the lines of communication among the districts.

The "crosswalk" matrices required several drafts for each district. Each program area was assigned only its prime costs, those that can be directly associated with the category. This insured that the school administration will be reviewing only the costs of a program that can be controlled. Several problems were encountered during the development of the crosswalks. It was often difficult to determine the proper program for an expenditure. Do non-teaching cafeteria aides provide instructional support or administrative support? Each district decided which role the item played in its system. If the roles were similar across districts, the item was associated with the same program. Also, certain administrators in a district worked in several program areas. A split of their salary among these programs tended to be arbitrary. In order to minimize the effects of the potential inaccuracies, three program areas were identified for these individuals' salaries. Instructional administration contained portions of the salary of those individuals supervising teachers. School management was the administration of a school building. Principals' salaries were split between these two categories. Finally, district management included the salaries of the central administrators.

The most difficult problem to overcome during the initial months of the program budget was the lack of detailed information. The program budget required a level of detail that was not normally collected in a district, and if it was

collected, the data was rarely centrally located. Therefore, the initial "crosswalks" were imprecise. To overcome this problem in the future, an accurate account coding scheme was designed and implemented for each district. The basic concerns for such a coding scheme were : simplicity for ease of change-over from the old codes, and that the new codes provide the necessary level of detail.

The completion of the first phase of the EMDEC approach, the implementation of the program budget, has been crucial to the continuing success of the project. By approaching the program budgeting section before the program goals, the district administrators have become familiar with the program concept in the context of a simple quantitative setting rather than in the more complex and less precise area of goals and objectives. Since the time frame for developing the program budget has been only one year, a portion of the PPB System can be in operation during the much longer process of designing goals and objectives and the evaluation of them. The fully implemented program budget can then be a sales tool to illustrate the appropriate level of funding for the school district, and to designate areas that may be vulnerable to budget cuts.

Future Directions

The second phase of the EMDEC approach is primarily concerned with program evaluation. The participants during the budgeting phase were superintendents and business managers. They will continue to refine the program budget. A second group, consisting of the directors of instruction and the superintendents, will be formed to implement the program evaluation portion.

The real value of the PPB System lies in program analysis and evaluation. Step (4) of the approach encapsulates this process by using two "pilot" pro-

grams. These programs will consist of one chosen by the three districts in common, and one specific to each district. This will encourage the sharing of problems across districts, facilitate the comparison of results across districts, and, since two programs will be chosen, some comparison of results will be possible within the district. By using "pilot" programs the implementation process can be modified for maximum effectiveness before impacting the entire district. It is anticipated that step (4) will be completed by August 1976.

Another area of PPBS that can provide valuable information to a school district but has rarely been implemented is multi-year budgeting. Multi-year budgeting can be a primary tool in the planning process of a school district. It can heighten the administrators' awareness of (1) new programs and their potential costs, rather than just their initial costs; (2) major repairs and/or equipment replacement that will be needed - the administrator can then attempt to distribute the effects of these costs across a number of years; and (3) will provide the citizens with a reasonable estimate of their taxes for the next three years. Steps (3) and (5) of the approach, concerned with multi-year budgeting, will be completed for the 1976-77 school budget.

The final two steps in the PPB process are concerned with the full implementation of the system. The development of goals and objectives is simply the full application of the guidelines designed during the "pilot" phase of the project. The periodic review and evaluation of the programs and the PPB System represent the management tool in operation. Without these last two steps the project is an academic exercise; they fulfill the intent of PPBS.

Summary

The EMDEC approach is a major step toward making PPBS a useful concept in educational management. The distribution of implementation and some operating costs across three school districts will make it a fiscal reality. The

early development of the program budget will help to overcome the organizational resistance that has plagued earlier projects. The excessive length of time required before results can be realized will be overcome by the immediate impact of the program budget. Finally, the use of pilot programs to develop implementation guidelines particular to the school system will maintain the districts' identity and provide more efficient evaluation techniques. Although it has not been fully tested, the logical consistency of the approach cannot be denied. These new guidelines will take PPBS, a theoretical success but a practical failure, and create a pragmatic and conceptual tool for school administrators.